

Tau-neutrino Cross Section Paper

Proposed Outline

0. Abstract

1. Introduction

[brief review of experimental setup; review of emulsion target and scanning; brief outline of tau analysis; outline of this paper]

2. Overview of τ Data Analysis

2.0 Event reconstruction

2.0.1 Spatial Resolution (Drift chambers, Sci Fi)

2.0.2 Track fitting, momentum, resolution

2.0.3 EM shower reconstruction, resolution

2.1. Emulsion track fitting / location

2.1.1 Momentum for Coulomb Scattering

2.1.2 Electron/gamma identification in emulsion

2.2. Secondary vertex analyses

2.3. Lepton tagging

2.4. τ / charm Recognition Analysis

2.4.1. Simple Topology / Kinematics

2.4.2. Mutil-variate analysis

2.4.3. ANN

3. Survey of Data

3.1. Expected Composition

3.1.1 Muon and electron neutrino identification (scanning, ANN)

3.2. ν CC events

3.2.1. Prompt and non-prompt

3.2.2. π^+ and π^- ratio and spectra vs Monte Carlo

3.3. e CC events

3.3.1. Estimated e energy

3.3.2 nue spectrum vs MC

4. τ Signal

4.1. List of event candidates (or table)

4.2. Multi-variate analysis and table

4.3 Comparison to charm events

5. Systematic Uncertainties

5.1. POT

5.2. τ Production

5.3. Electronic efficiencies

5.3.1. Trigger, live-times, events-on-tape

5.4. Analysis efficiencies

5.4.1. Stripping / Scanning

5.4.2. Location

5.4.3. Decay search

5.5. Background estimates to τ signal

6. τ Cross Section

6.1. Relative

6.2. Absolute

7. Conclusions and restate main results